

AMENDMENTS TO THE CLAIMS

In accordance with 37 C.F.R. §1.121(c), please amend the claims as indicated in marked-up form below, where additions are underlined, deletions are struck through, and new claims are presented without markings.

1. (Currently Amended) A method comprising:

providing a first wafer having a number of conductors disposed on a surface thereof;

providing a second wafer having a number of conductors disposed on a surface thereof;

depositing a layer of a metal only on each of ~~a number of~~ the conductors disposed on a ~~surface of a first~~ the surface of the first wafer such that the conductors disposed on the surface of the second wafer do not have a metal layer deposited thereon;

aligning the first wafer with ~~a second~~ the second wafer, ~~the second wafer having a number of conductors disposed on a surface thereof;~~

physically contacting the metal layer on each of the conductors of the first wafer with a mating one of the conductors on the second wafer; and

forming a bond between the metal layer on each of the conductors of the first wafer and the mating one conductor of the second wafer, wherein all regions of the first and second wafer surfaces surrounding the mating conductors remain unbonded, wherein the bond is formed at a temperature between approximately 100 and 300 degrees Celsius.

2. (Previously Presented) The method of claim 1, further comprising, prior to depositing the metal layer on each of the conductors of the first wafer, removing dielectric material from the surface of the first wafer.

3. (Previously Presented) The method of claim 1, further comprising, prior to depositing the metal layer on each of the conductors of the first wafer, removing native oxide from the conductors.
4. (Previously Presented) The method of claim 1, wherein the conductors of the first wafer comprise Copper.
5. (Previously Presented) The method of claim 1, wherein the metal comprises a metal selected from a group consisting of Silver, Gold, Ruthenium, Osmium, Iridium, Palladium, Rhodium, and Platinum.
6. (Canceled)
7. (Previously Presented) The method of claim 1, wherein depositing the layer of metal on each of the conductors of the first wafer comprises:
forming a blanket layer of the metal over the conductors and the surface of the first wafer; and
removing the metal from at least portions of the first wafer surface.
8. (Previously Presented) The method of claim 1, wherein depositing the layer of metal on each of the conductors of the first wafer comprises selectively depositing the metal on each of the conductors.

9. (Previously Presented) The method of claim 8, wherein selectively depositing the metal on each of the conductors of the first wafer comprises an electroless plating process, an electroplating process, or a contact displacement plating process.

10. (Previously Presented) The method of claim 1, wherein the metal layer on each of the conductors of the first wafer comprises a number of islands.

11. (Previously Presented) The method of claim 10, wherein the islands are selectively deposited on each of the conductors of the first wafer.

12. (Currently Amended) A method comprising:

providing a first wafer having a number of conductors disposed on a surface thereof;

providing a second wafer having a number of conductors disposed on a surface thereof;

depositing a layer of a metal only on each of ~~a number~~ the number of conductors disposed on ~~a surface of a first~~ the surface of the first wafer such that the conductors disposed on the surface of the second wafer do not have a metal layer deposited thereon;

aligning the first wafer with ~~a second~~ the second wafer, ~~the second wafer having a number of conductors disposed on a surface thereof;~~

physically contacting the metal layer on each of the conductors of the first wafer with a mating one of the conductors on the second wafer; and

forming a bond between the metal layer on each of the conductors of the first wafer and the mating one conductor of the second wafer, wherein all regions of the first and second wafer surfaces surrounding the mating conductors remain unbonded, wherein the metal layer on each of the conductors of the first wafer comprises a number of islands; and wherein the islands are formed by a process comprising: depositing a blanket layer of the metal over the conductors and the surface of the first wafer; and removing the blanket metal layer from at least portions of the first wafer surface and from portions of each conductor to form the number of islands on each conductor.

13-42. (Canceled)